



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,982	02/01/2000	Christopher L. Jones	59036-249728	5534

35657 7590 12/17/2003

PATENT GROUP  
FAEGRE & BENSON LLP  
3200 WELLS FARGO CENTER  
1700 LINCOLN STREET  
DENVER, CO 80203-4532

EXAMINER
----------

DIXON, THOMAS A

ART UNIT	PAPER NUMBER
----------	--------------

3629

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/495,982

Applicant(s)

JONES ET AL.

Examiner

Thomas A. Dixon

Art Unit

3629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14-22 and 31-33 is/are allowed.
- 6) ☒ Claim(s) 1-13, 23-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) 34-57 are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. The arguments presented in the appeal brief of 11 September 2003 have been considered, and are convincing regarding Luskin. Recent training regarding 101 necessitate the new grounds for the 101 rejection.

#### ***Election/Restrictions***

2. Claims 34-57 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The new claims are to limitations which differ significantly from the originally presented claims in their analysis of the assets to be considered for the recommended portfolio and are seen to be three separate inventions, combinations useable with the original invention, but distinct from it.

Claims 34 and 53 determining a combination of one or more asset classes and proportions thereof that characterize future performance of each financial product and identifying a recommended efficient portfolio of financial products while claim 1 merely claims generating return scenarios... creating a mapping... determining expected returns and volatility of returns for the portfolios... and identifying a recommended portfolio.

Claims 44 and 55 performing an exposure analysis on each financial product and identifying a recommended portfolio while claim 1 merely claims generating return scenarios... creating a mapping... determining expected returns and volatility of returns for the portfolios... and identifying a recommended portfolio.

Art Unit: 3629

Claim 57 determining each financial product's effective asset mix with respect to the set of factor asset classes and identifying a recommended portfolio while claim 1 merely claims generating return scenarios... creating a mapping... determining expected returns and volatility of returns for the portfolios... and identifying a recommended portfolio.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 34-57 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### ***Specification***

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-13, 23-30 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention is not within the technological arts.

5. As an initial matter, the United States Constitution under Art. I, §8, cl. 8 gave Congress the power to "[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries". In carrying out this power, Congress authorized under 35 U.S.C. §101 a grant of a patent to "[w]hoever invents or discovers any new and useful process,

Art Unit: 3629

machine, manufacture, or composition or matter, or any new and useful improvement thereof." Therefore, a fundamental premise is that a patent is a statutorily created vehicle for Congress to confer an exclusive right to the inventors for "inventions" that promote the progress of "science and the useful arts". The phrase "technological arts" has been created and used by the courts to offer another view of the term "useful arts". See *In re Musgrave*, 167 USPQ (BNA) 280 (CCPA 1970). Hence, the first test of whether an invention is eligible for a patent is to determine if the invention is within the "technological arts".

6. Further, despite the express language of §101, several judicially created exceptions have been established to exclude certain subject matter as being patentable subject matter covered by §101. These exceptions include "laws of nature", "natural phenomena", and "abstract ideas". See *Diamond v. Diehr*, 450, U.S. 175, 185, 209 USPQ (BNA) 1, 7 (1981). However, courts have found that even if an invention incorporates abstract ideas, such as mathematical algorithms, the invention may nevertheless be statutory subject matter if the invention as a whole produces a "useful, concrete and tangible result." See *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* 149 F.3d 1368, 1973, 47 USPQ2d (BNA) 1596 (Fed. Cir. 1998).

7. This "two prong" test was evident when the Court of Customs and Patent Appeals (CCPA) decided an appeal from the Board of Patent Appeals and Interferences (BPAI). See *In re Toma*, 197 USPQ (BNA) 852 (CCPA 1978). In *Toma*, the court held that the recited mathematical algorithm did not render the claim as a whole non-statutory using the Freeman-Walter-Abele test as applied to *Gottschalk v. Benson*, 409 U.S. 63, 175 USPQ (BNA) 673 (1972). Additionally, the court decided separately on the issue of the "technological arts". The court developed a "technological arts" analysis:

The "technological" or "useful" arts inquiry must focus on whether the claimed subject matter...is statutory, not on whether the product of the claimed subject matter...is statutory, not on whether the prior art which the claimed subject matter purports to replace...is statutory, and not on whether the claimed subject matter is presently perceived to be an improvement over the prior art, e.g., whether it "enhances" the operation of a machine. *In re Toma* at 857.

Art Unit: 3629

In *Toma*, the claimed invention was a computer program for translating a source human language (e.g., Russian) into a target human language (e.g., English). The court found that the claimed computer implemented process was within the "technological art" because the claimed invention was an operation being performed by a computer within a computer.

8. The decision in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* never addressed this prong of the test. In *State Street Bank & Trust Co.*, the court found that the "mathematical exception" using the Freeman-Walter-Abele test has little, if any, application to determining the presence of statutory subject matter but rather, statutory subject matter should be based on whether the operation produces a "useful, concrete and tangible result". See *State Street Bank & Trust Co.* at 1374. Furthermore, the court found that there was no "business method exception" since the court decisions that purported to create such exceptions were based on novelty or lack of enablement issues and not on statutory grounds. Therefore, the court held that "[w]hether the patent's claims are too broad to be patentable is not to be judged under §101, but rather under §§102, 103 and 112." See *State Street Bank & Trust Co.* at 1377. Both of these analysis goes towards whether the claimed invention is non-statutory because of the presence of an abstract idea. Indeed, *State Street* abolished the Freeman-Walter-Abele test used in *Toma*. However, *State Street* never addressed the second part of the analysis, i.e., the "technological arts" test established in *Toma* because the invention in *State Street* (i.e., a computerized system for determining the year-end income, expense, and capital gain or loss for the portfolio) was already determined to be within the technological arts under the *Toma* test. This dichotomy has been recently acknowledged by the Board of Patent Appeals and Interferences (BPAI) in affirming a §101 rejection finding the claimed invention to be non-statutory. See *Ex parte Bowman*, 61 USPQ2d (BNA) 1669 (BdPatApp&Int 2001).

9. In the present application, Claim 1 produces a useful, concrete and tangible product, the recommended portfolio, but is not seen to be in the technological art, there is no explicit technology involved, it appears that the method could be performed by the human mind and it is unclear what step(s) (generating, creating, determining, or identifying) are automated or how the step(s) are performed in an automated fashion.

10. In the present application, Claim 23 produces a useful, concrete and tangible product, the recommended portfolio, but is not seen to be in the technological art,

Art Unit: 3629

there is no explicit technology involved, it appears that the method could be performed by the human mind and it is unclear what step(s) (estimating, determining, or identifying) are automated or how the step(s) are performed in an automated fashion.

***Allowable Subject Matter***

11. Claims 14-22, 31-33 are allowable.
12. Claims 1-13, 23-30 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action.
13. The following is a statement of reasons for the indication of allowable subject matter:

As per Claim 1, 31.

The prior art of record, specifically, Luskin et al ('987) in view of Atkins ('727) or Edesess ('287) or Sharpe et al ("Investments", Fifth Edition, 1995) does not disclose or fairly teach:

creating a mapping from each financial product of an available set of financial products onto one or more asset classes of the plurality of asset classes by determining exposures of the available set of financial products to each asset class;

determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping;

identifying a recommended portfolio that maximizes an expected utility of wealth for a particular investor as claimed.

As per Claim 14, 32.

The prior art of record, specifically, Luskin et al ('987) in view of Atkins ('727) or Edesess ('287) or Sharpe et al ("Investments", Fifth Edition, 1995) does not disclose or fairly teach:

a returns-based style analysis step for creating a mapping from each financial product of an available set of financial products onto one or more asset classes of the plurality of asset classes by determining exposures of the available set of financial products to each asset class of the plurality of asset classes;

a step of determining expected returns and volatility of returns for each of a plurality of portfolios on the efficient frontier based upon the mapping, each of the plurality of portfolios including combinations of financial products from the available set of financial products;

a recommendation step for identifying a recommended portfolio of the plurality of efficient portfolios that maximizes an expected utility of wealth for a particular investor as claimed.

Art Unit: 3629

As per Claim 23, 33.

The prior art of record, specifically, Luskin et al ('987) in view of Atkins ('727) or Edesess ('287) or Sharpe et al ("Investments", Fifth Edition, 1995) does not disclose or fairly teach:

determining expected returns for each financial product of an available set of financial products based upon the financial product's sensitivity to movements of a plurality of predetermined economic factors by utilizing a factor model;

identifying a recommended portfolio of the plurality of portfolios that maximizes a particular investor's utility function at a predetermined time horizon taking into consideration the timing and amount of expected contributions and expected withdrawals, if any as claimed.



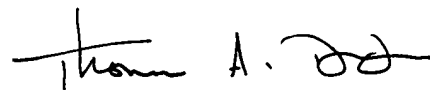
Art Unit: 3629

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Dixon whose telephone number is (703) 305-4645. The examiner can normally be reached on Monday - Thursday 6:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Weiss can be reached on (703) 308-2702. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



Thomas A. Dixon  
Examiner  
Art Unit 3629

December 4, 2003